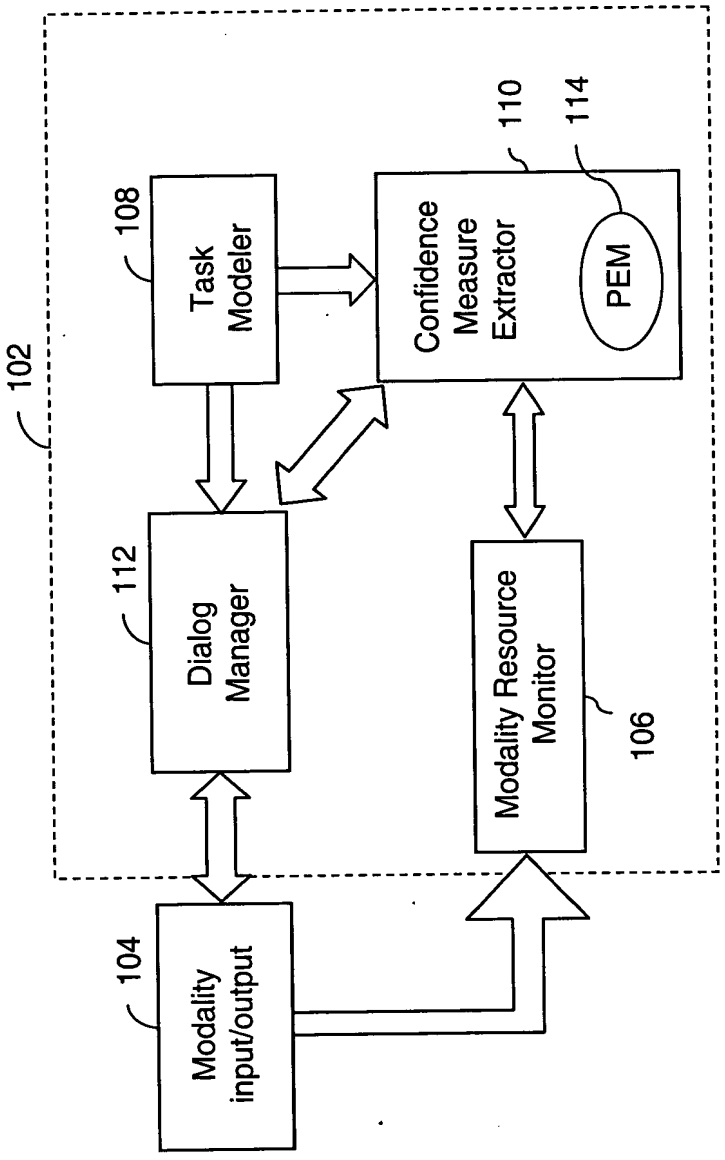
102
108
Task Modeler
110
114
Confidence Measure Extractor
PEM
112
Dialog Manager
Modality Resource Monitor
106
104
Modality input/output

FIG. 1

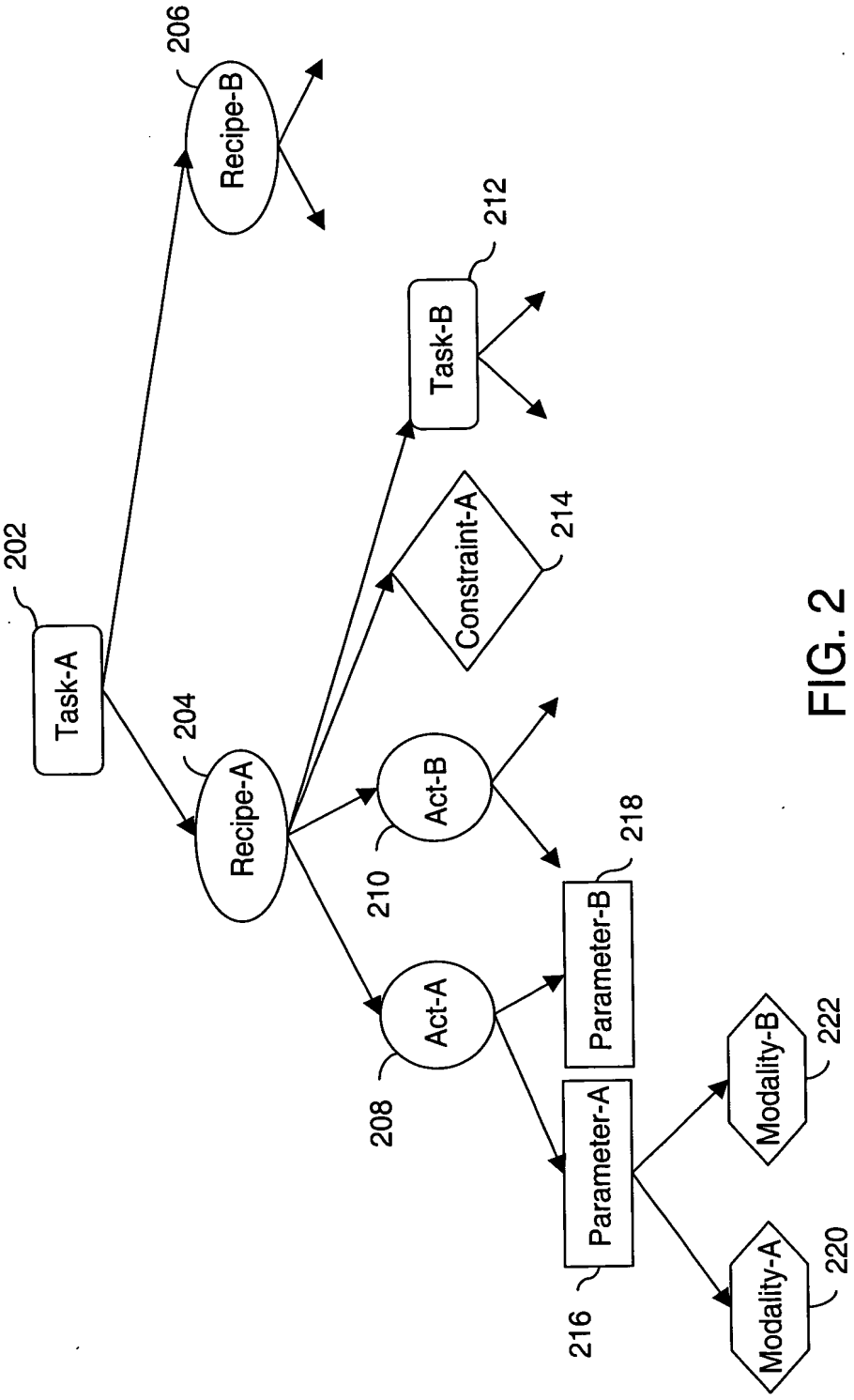
Task-A
202
Recipe-A
204
Recipe-B
206
Act-A
208
Act-B
210
Task-B
212
Constraint-A
214
Parameter-A
216
Parameter-B
218
Modality-A
220
Modality-B
222

FIG. 2

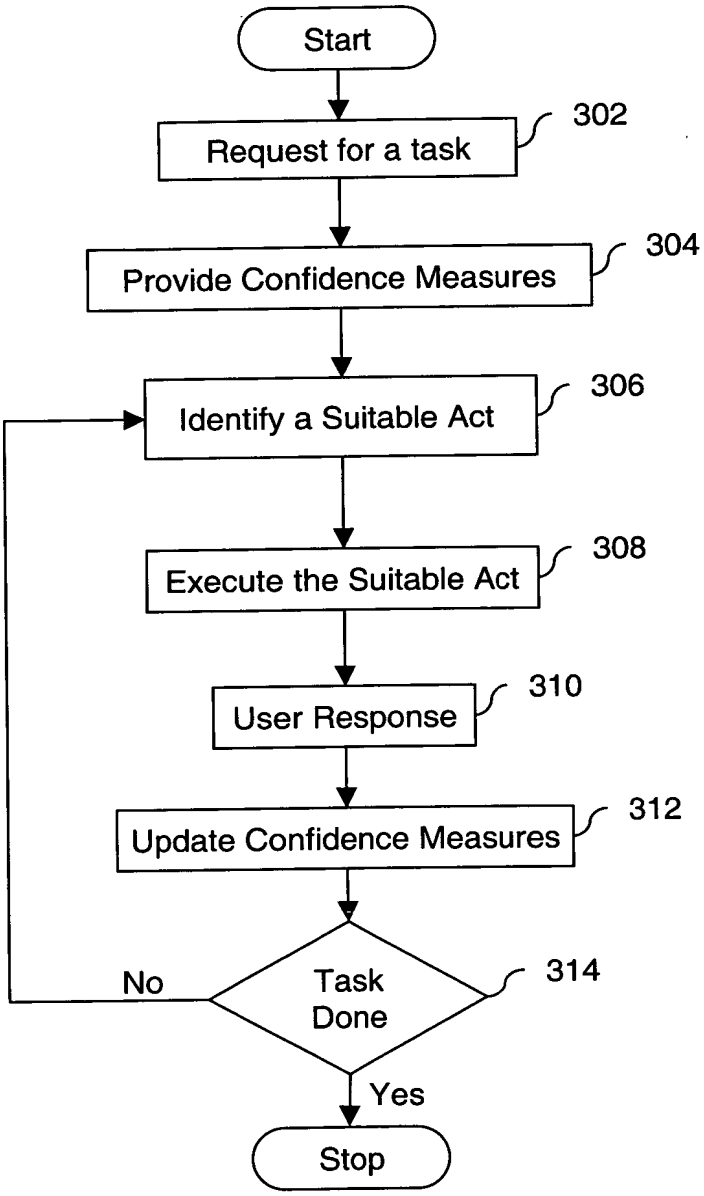
Start
Request for a task
302
Provide Confidence Measures
304
Identify a Suitable Act
306
Execute the Suitable Act
308
User Response
310
Update Confidence Measures
312
Task Done
314
No
Yes
Stop

FIG. 3

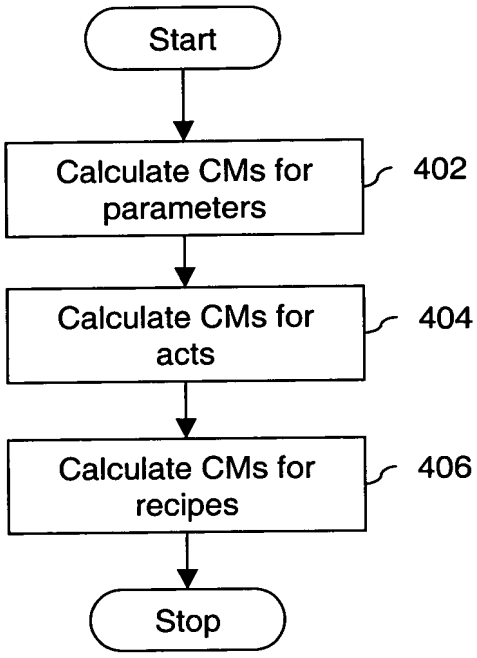
Start
Calculate CMs for parameters
402
Calculate CMs for acts
404
Calculate CMs for recipes
406
Stop

FIG. 4

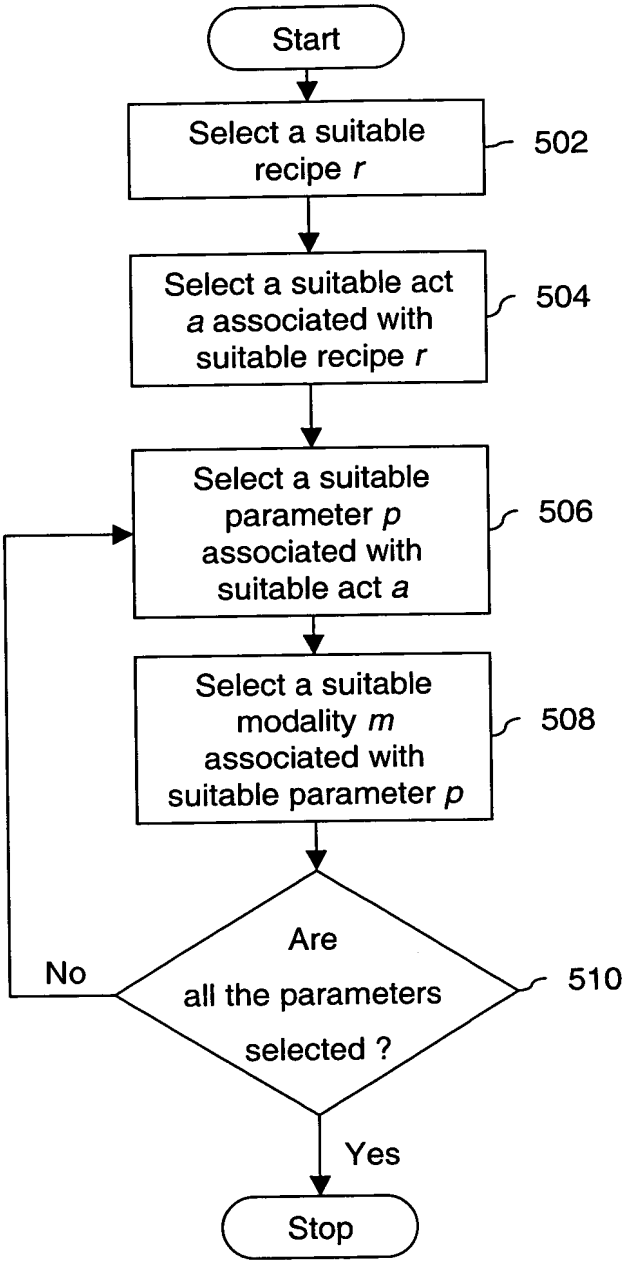
Start
Select a suitable recipe r
502
Select a suitable act a associated with suitable recipe r
504
Select a suitable parameter p associated with suitable act a
506
Select a suitable modality m associated with suitable parameter p
508
Are all the parameters selected ?
510
No
Yes
Stop

FIG. 5

Task: Find audio file		
Recipe_1	Act specify_song_name *A1*;	Parameter string *Song_Name1*;
	Act specify_artist_name *B1*;	Parameter string *Artist_Name1*;
	Act search_database *C1*;	
	Constraints	*A1* precedes *C1* *B1* precedes *C1*
Recipe_2	Optional Act lyric_contains *A2*;	Parameter string *Lyric2*;
	Act specify_year_of_release *B2*;	Parameter integer *Year2*;
	Act specify_song_name *C2*;	Parameter string *Name2*;
	Act search_database *D2*;	
	Constraints	*A2* precedes *D2*; *B2* precedes *D2*; *C2* precedes *D2*;

FIG. 6

Calculation of Confidence Measures for Recipe_1			
Recipe_1 *RLCM1* = 0.85 x 0.75 x 1.0	Act specify_song_name *A1*; *ALCM1* = 0.85	Parameter string *Song_Name1*; *PLCM1* = 0.5 x 0.8 + 0.5 x 0.9	Speech: 0.8 Keyboard: 0.9
	Act specify_artist_name *B1*; *ALCM2* = 0.75	Parameter string *Artist_Name1*; *PLCM2* = 0.5 x 0.8 + 0.5 x 0.7	Speech: 0.8 Keyboard: 0.7
	Act search_database *C1*; *ALCM3* = 1.0		

FIG. 7